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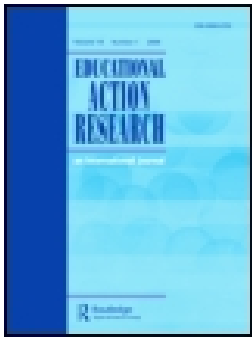
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Creative action research

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ABSTRACT

Youth-Creative Action Research (Y-CAR) is a variant of participatory action research specifically suited for exploring and developing evidence-informed innovations to address complex social challenges such as climate change. In this paper, we present an overview of Y-CAR and explore its core defining features, potential for application in research and action, and connection to other action-oriented research methodologies. We draw on a range of examples of this emergent methodology that illustrates its evolution and core principles in action and show how it has been implemented in research. We conclude the paper by examining key learnings, future leverage points, and limitations to applying Y-CAR in practice.



KEYWORDS

design thinking; youth; social innovation; arts-based methods; climate change; disasters

I. Introduction

Youth-Creative Action Research (Y-CAR) was developed as a variant of participatory action research (PAR) for working with youth and their adult allies. It is an approach specifically suited to research and evidence-informed innovation that addresses complex social challenges such as those associated with climate change (Bergman et al. 2010; Rodima-Taylor, Olwig, and Chhetri 2012). As with all PAR approaches, Y-CAR is rooted in responsive, relational, and reflexive ethics (Lahman et al. 2011) and values shared respect and listening in the research process (Bussu et al. 2020). In line with the principles of PAR outlined by McTaggart (1997), Y-CAR actively, authentically, and collaboratively engages participants in reflection and action to effect social change; emphasizes knowledge co-creation; and engages participants in iterative learning cycles that encourage questioning dominant paradigms and complex issues to identify and understand their underlying causes.

The key differentiation of Y-CAR from other participatory action research approaches lies in its foregrounding of creative process and methods, and the integration of design thinking and capacity building as part of the research process. Design thinking (DT) offers a flexible but structured approach to understanding and innovating in response to complex issues or so-called 'wicked' problems (Cankurtaran and Beverland 2020). By combining DT with intentional and integrated capacity development as part of the research process, Y-CAR cultivates skills and attributes in participants associated with

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both resilience and innovation (e.g. creativity, self-efficacy, navigating ambiguity, leadership, listening, and adaptability), and emphasizes transformative learning and the development and application of innovation-related skills as key elements of the *action* in action research.

The focus of Y-CAR on creative process, underscores the importance of the ‘how’ or the journey in research, as much as the ‘why’ and ‘what’ of research (Figure 1). To encourage rigour, Y-CAR incorporates multiple, simultaneous methods of data generation, some traditional (e.g. interviews, focus groups, surveys) and others more participatory and creative (e.g. social mapping, arts-based exploration, digital storytelling) with an emphasis on youth-relevant methods and channels (e.g. Twitter, Instagram).

In this paper, we explore Y-CAR’s: (1) connection to other action-oriented research methodologies; (2) defining features; and (3) potential for application in research and action. To do this, we draw on a range of examples of Y-CAR that both illustrate its evolution as a methodology and demonstrate its core principles as implemented in research. We conclude by examining key learnings and future leverage points to apply Y-CAR in practice.

Y-CAR in relationship to PAR

Y-CAR is an important example of a research methodology for engaging people in research who may not respond positively to, or feel comfortable with, more traditional data generation methods. As such, Y-CAR falls within the established traditions of PAR and is aligned with ‘sister’ approaches that focus on engaging youth in research (Clark 2010; James and Prout 1990), such as Youth Participatory Action Research (YPAR; Anyon et al.

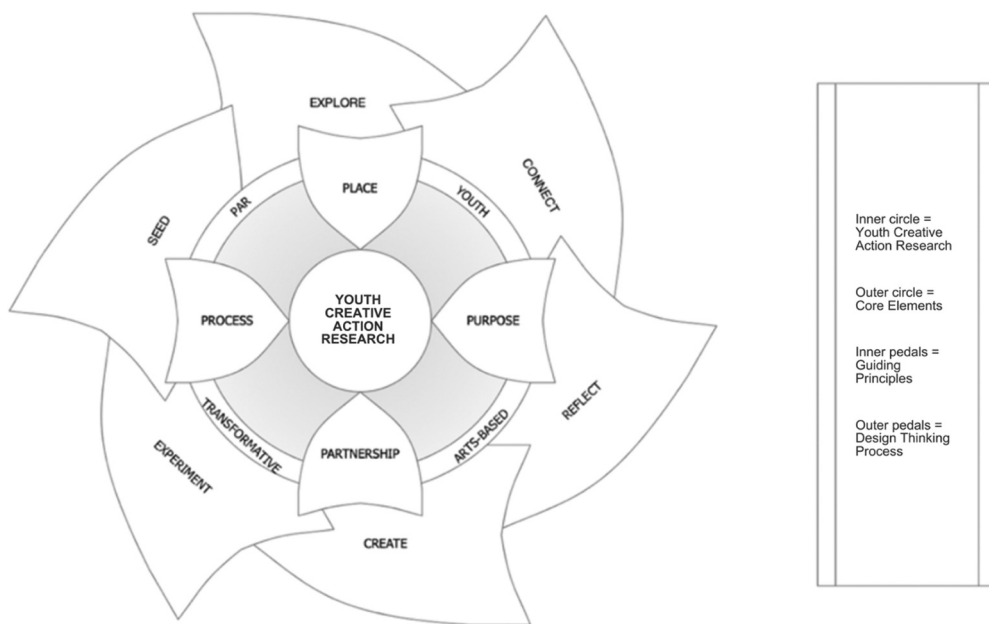


Figure 1. Y-CAR Process Diagram.

2018). As previously stated, Y-CAR stands out however, as a novel approach that foregrounds mutual learning, capacity building, and intergenerational partnerships as an integral part of the research process. The invitation inherent in Y-CAR is for youth and adults to share and open a space of curiosity and mutual learning, as they build their capacities as researchers, innovators, and leaders. This responds to the recognized imperative of activating youth and adults as change-makers to address complex social issues. As with all PAR approaches, Y-CAR represents a methodological shift emphasizing the value of relationality and considering multiple ways of knowing and being (Bartlett, Marshall, and Marshall 2012; Heron and Reason 1997, 2008), and the importance of including and amplifying the unique insights and voices of populations whose perspectives are often excluded or marginalized (Reason and Bradbury 2008).

The goal of Y-CAR is to involve participants as much as possible in all stages of the research (Israel et al. 1998), shaping the process to acknowledge and transcend power imbalances (Reason and Bradbury 2008) and supporting participants gaining practical knowledge and taking actions that contribute to social change and the generation of knowledge (Kindon, Pain, and Kesby 2007). All three participatory approaches – PAR, YPAR, and Y-CAR – build from the assumption that those who are or have been excluded or oppressed hold wisdom about the history and consequences of unjust social arrangements (Fine 2006) and, with systemic barriers removed, can ‘begin to re-vision and denaturalize the realities of their social worlds and then undertake forms of collective challenge based in the knowledge garnered through their critical inquiries’ (Cammarota and Fine 2008, 2). Similarly, PAR, YPAR, and Y-CAR embrace, to varying degrees, a focus on arts-based methods and the power of creative expression for promoting inquiry that extends ‘beyond the limiting constraints of discursive communication in order to express meanings that otherwise would be ineffable’ (Barone and Eisner 2012, 1). Creative and experiential methods such as PhotoVoice (Baker and Wang 2006), digital stories (Fletcher and Mullett 2016), participatory photography (Tuck and Habtom 2019) and videography (Plush 2016) enhance critical reflection, challenge routine thinking, and facilitate the development of creative problem-solving skills (Percy-Smith and Burns 2013). Further, such methods help build confidence, social skills, and empathy (Coholic and Eys 2016); contribute to self-efficacy, empowerment, and action (Conrad 2004; McKay et al. 2011); and support effective knowledge mobilization (Diamond and Mullen 1999; O’Donoghue 2009).

Principles guiding Y-CAR

Over the course of the evolution of Y-CAR, we have identified four key principles grounded in process, partnership, place, and purpose that shape an ethical approach to participatory research with both youth and adults. While we reference research with youth in our examples, these principles can also be applied more broadly to other populations who are often marginalized in research. Applying these principles encourages a sense of ownership and agency in the research, contributing to a sense of being valued, and encouraging the development of leadership capacities and resilience (Cox et al. 2019).

The *process* principle recognizes and emphasizes that the process in research is as important as any outcomes generated through the research. Focusing attention on

process allows researchers and participants opportunities to slow down, build trust and connection, and learn through reflection. Using creative methods and design thinking in this process supports an analysis of and response to power dynamics, social stigmas, inequities, and opportunities as they arise in the context of the research. This focus provides both researchers and participants.

The *partnership* principle focuses attention on the value of partnerships and collaboration more generally (e.g. with community members), and more specifically, on the value of bringing participants and researchers together as equal partners in research. It is important to acknowledge that all participants bring unique and valuable perspectives, talents and insights to the research, and that all participants, youth and adults, have different capacities and access to power and that the research needs to support their full participation in the co-design of the research process and outcomes. Youth-adult partnerships contribute to the sustained inclusion of youth in decision-making processes; reduces their marginalization in research (Fernandez and Shaw 2013); can enhance wellness and positive youth development (Christens and Peterson 2012; Jeffrey 2012); the increase the likelihood for youth feeling empowered to take on leadership roles (Ho, Clarke, and Dougherty 2015).

The *place* principle promotes actions that incorporate the physical and social contexts of the participants and recognizes that participants may value and feel a sense of belonging and attachment to different places. This means understanding the significant role place plays in identity development and sense of safety and belonging (Cox et al. 2017; Scannell et al. 2016), and the potential of place attachment to motivate involvement in community-based research (Scannell, Cox, and Fletcher 2017).

Finally, the *purpose* principle acknowledges that sense making is as a driver for youth as it is for adults. Focusing attention on purpose recognizes that for all participants, youth and adults, engagement needs to be meaningful; engagement includes being able to lead and influence the design of activities such that the activities are meaningful and relevant to participants' lived experiences (Cox et al. 2019).

Y-CAR as an approach to researching and designing solutions for complex problems

Y-CAR builds from and integrates these four principles within a design thinking process to support youth and adult allies effectively exploring and responding to wicked problems, such as those posed by the COVID-19 pandemic, and other climate- and hazard-related disasters. The term complex or 'wicked' problems describes challenges that are ill-defined, with multiple causes, complex internal dynamics, and no clear or easy solutions (Rittel and Webber 1973). These problems are made more complex because of the urgency of the need to find solutions and by the fact that those who might be best positioned to generate solutions are often those who have caused the problem and may have the least incentive to fix it (Lazarus 2009; Levin et al. 2012).

Navigating complex global dilemmas requires novel approaches to thinking and problem-solving (Cankurtaran and Beverland 2020). Design thinking offers a user or human-centred way of working that engages participants in iterative solution-oriented cycles of exploration, creative experimentation, and rapid development and testing of ideas (Moggridge 2010). It is an approach to problem-solving that 'brings together what is

desirable from a human point of view with what is technologically feasible and economically viable' (Brown *n.d.*, para. 1), providing a structured, yet flexible space for participants to generate solutions in ways that allow them to risk trying, failing, learning, and reimagining novel solutions (Westley, Gobey, and Robinson 2012). Y-CAR creates the space for participants to learn and apply design thinking, tapping into diverse ways of knowing (Bartlett, Marshall, and Marshall 2012; Heron and Reason 2008) and working both to understand and act on the challenge as part of the research.

Y-CAR and youth

Youth today will live out the mid-century predictions for climate impacts (2050) and the end of the century climate impacts benchmarks (Ballew et al. 2019) while also contending with the echoes of the COVID-19 pandemic, the effects of which will have long-standing effects on today's youth (Courtney et al. 2020; Wade, Prime, and Browne 2020). By 2030, young people under 18 years of age are predicted to account for up to 60% of the world's urban population (United Nations Habitat 2012); youth ages 15 to 24 years currently represent 1.2 billion people or approximately one-sixth of the world's population (United Nations Department of Economic and Social Affairs 2019). As evidenced in the precedent setting youth-driven climate strikes (Barclay and Resnick 2019; Rodriguez 2019), youth are increasingly aware of the urgency of global challenges. Predictions of escalating climate risks are generating marked increases in existential anxiety and depression and ecological grief among youth (Burke, Sanson, and Hoorn 2018; Cunsolo and Ellis 2018; Gifford and Gifford 2016; Van Susteren 2018). Climate aware youth (and adults) face the disconcerting paradox of what they know needs to be done, what they see currently being done, and how much they feel they can influence either (Clayton 2018; Plutzer et al. 2016).

The principles and process of Y-CAR provide a way of approaching collaborative inquiry into and action on climate change and other complex issues (see Figure 1). Participants are encouraged to resist oversimplifying the problem by considering multiple perspectives as they deconstruct and identify the assumptions, biases, and root causes that shape the problem space. Creative and divergent thinking are fostered to encourage outside-the-box thinking and 'ideation' of innovative solutions which, in the full cycle of design thinking, are then prototyped and tested in the real world. Research questions and data collection opportunities are embedded in each step of the creative problem-solving process. In this way, Y-CAR foregrounds the 'action' in action research as much as it does the exploration and inquiry.

Y-CAR in action

Having explored the defining features of Y-CAR, we now provide illustrations of Y-CAR in action drawn from multiple research projects conducted by the authors over the past decade. These projects were led by an interdisciplinary group of change-makers, researchers, students, practitioners, youth, and community members who came together as part of the ResilienceByDesign lab (2018a) (RbD: <https://resiliencebydesign.com/>), a collaborative, university-based, research innovation centre focusing on research and

capacity building with youth and adults to catalyse leadership for disaster risk reduction, resilience, and climate change adaptation.

The Y-CAR approach was originally piloted as part of the Youth Creating Disaster Recovery and Resilience project (YCDR2) (Fletcher et al. 2016), an international research project that engaged disaster-affected youth in an exploration of disaster recovery and resilience. Although YCDR2 was the genesis of Y-CAR, this article focuses on three subsequent research projects that continued to use and further develop Y-CAR as a methodology: the Alberta Resilient Communities (ARC) project; the Youth Voice Rising (YVR) Project, and the Generation Z and Climate Change (Gen Z) project. These projects are used as case examples to offer more detailed insights into the research methods and the evolution of Y-CAR over time. Where youth quotes are shared, first names are included where consent was given to do so, and participant numbers are used where consent was not provided.

The Alberta resilient communities project

ARC (2015–2019), a multi-investigator research project, was launched in southern Alberta, Canada following a catastrophic regional flood event. The goal of ARC was to understand and strengthen child and youth resilience and youth citizen engagement in disaster preparedness, risk reduction, and resilience through participatory research. The youth stream of the ARC project was led by the RbD and used Y-CAR to explore disaster resilience and youth's desire to contribute to disaster recovery.

A diverse group of youth (ages 18–25) recruited from flood affected communities, were engaged in a series of face-to-face and virtual labs or workshops using many of the arts-based, participatory, and creative methods used in YCDR2 (e.g. unity circle, web of recovery, visual storytelling, digital storytelling; see Fletcher et al. 2016). These methods were used both as a way of making research fun, while also deepening the inquiry process and amplifying the potential and power for participants and researchers to be able to share the ideas and insights generated through the research.

This iteration introduced two new dimensions to Y-CAR, by integrating design thinking (DT) and intentional capacity building as key structuring elements of the research process. Based on a critical review of design thinking methodologies (Kieboom 2014; Moulaert et al. 2013), we developed a flexible, youth-centric approach to DT. This approach integrates arts-based and other experiential activities (e.g. place-based scavenger hunt, serious gaming) in a series of iterative DT steps (explore, connect, reflect, create, experiment, seed) to explore the overarching themes of resilience, climate action, place attachment, and disaster risk reduction.

The incorporation of intentional capacity building as part of the research process reflects a recognition of the importance of mutual benefit and meaningful engagement in research, particularly with youth (Fletcher 2014). The research team worked with Royal Roads University's Professional and Continuing Studies to build a Resilience Innovation Skills (RIS) Certificate. The curriculum aligns with the iterative steps of the DT process and consists of a combination of training in relevant research and innovation skills, and simultaneous multi-media data generation (e.g. reflective playlists, photo-stories, structured interviews, questionnaires).

This iteration of Y-CAR engaged youth over the course of a year and a half in skill-building and exploratory workshops that resulted in youth-designed conceptual prototypes for community resilience initiatives. Some youth participated in only one workshop, others continued on with the project over the course of a year to complete the RIS certificate process ($N = 7$) and participated in project-led opportunities to engage with local community, business, and innovation leaders ($N = 26$) who served as volunteer mentors, coaches, and connectors for youth wanting to take their initiatives from prototypes to real-world projects.

The integration of capacity building in Y-CAR was well-received by many of the youth who described appreciating the non-hierarchical intergenerational engagement and the opportunities the process provided for practicing public speaking and working on self-identified and self-driven projects. One youth described how these opportunities increased their confidence, stating that this ‘was a good step into even getting your idea out there and it made me ask questions I haven’t really thought of before’ (Jesse, ARC participant). Another spoke of how such opportunities were empowering: ‘Speaking at events has been a challenge, as it normally isn’t a youth-friendly place, but these obstacles have empowered me even more to change the way that youth are perceived’ (Kennedy, ARC participant).

As with previous iterations of Y-CAR, the research generated multiple forms of data (e.g. informal and formal feedback from youth; semi-structured interviews about youths’ experiences of the floods and the research; and arts-based artefacts such as videos, photos, and music playlists). When possible, we recruited youth as co-researchers to help interpret and analyse the data.

Youth voices rising (YVR): recovery and resilience

The YVR project (2017–2019) took place in the Regional Municipality of Wood Buffalo, Alberta, and was funded as an action research project designed to support the disaster recovery of youth in that region. YVR explored ideas with youth (aged 15–24) about how their communities might be strengthened after the devastating 2016 wildfire disaster in Fort McMurray and the surrounding area, a fire that destroyed more than 2,400 buildings and homes, and temporarily displaced more than 88,000 people (Mamuji and Rozdilsky 2019).

Amplifying underrepresented voices underpinned the YVR project which aimed to engage youth who were perceived to have had few opportunities to have their voices heard in their communities generally and especially in the disaster recovery context. The key driver was a deepened attention to the importance of generating not only opportunities to give voice, but also public places to have those voices heard. With this in mind, YVR placed a specific emphasis on partnering with Indigenous youth to ensure their viewpoints would be part of post-recovery decision-making. Another research goal was to better understand how the Y-CAR process could be tailored to access and elevate youth voice through the combination of creative arts and social media, and by youth more directly engaging with policy- and decision-makers.

The project began with a series of listening meetings between the researchers, local youth, youth-centric organizational staff, Indigenous youth leaders, and government to identify how best to situate and facilitate the project and engage youth. The discussions led to a day-long *Ideas Incubator* workshop in which local youth (including Indigenous

youth) designed a regional social media campaign on Facebook, Instagram, and Twitter that they named #YouthVoicesWB. The campaign was designed by and for youth to creatively answer the research question: ‘How would you make your community better?’

The social media campaign resulted in youth sharing their visions for their community through more than 350 photographs, original songs, art pieces, poems, presentations, drawings, sticky note answers on a graffiti wall, and more (ResilienceByDesign, 2018a). The campaign was timed to align with local mayoral elections in a strategic effort to amplify the voices and concerns of youth to local decision makers. A thematic analysis of the social media campaign inputs – combined with follow-up interviews (N = 20) conducted by local youth research assistants helped identify five key priority areas of concern that youth wanted decision-makers to consider in local recovery planning. Two youth representatives, Mariam (age 15, YVR participant) from Fort McMurray and Brina (age 17, YVR participant) from the Chipewyan Prairie Dene First Nation in Janvier, presented these themes to a council meeting of the Regional Municipality of Wood Buffalo. The presentation was well-received by the mayor and council and more than 50 young people and decision-makers from across the region met subsequently to explore how to integrate the youth recommendations into local planning.

Gen Z and climate change

Gen Z (2016–2019) was another Y-CAR research project designed to understand youth engagement in disaster risk reduction and climate action from the perspectives of youth. It involved a mixed-methods study and drew on the emerging values and processes of the Y-CAR methodology to frame both the qualitative and quantitative aspects. Gen Z incorporated a national survey on youth climate change engagement using a peer-to-peer data generation model (i.e. youth trained as co-researchers reaching out to other youth to participate in the survey), and several experiential workshops exploring youth engagement in climate action. In addition to arts-based methods, we also used place-based activities (e.g. mapping places and spaces of belonging using enlarged topographical, regional maps), nature-based activities (e.g. biologist led walk identifying traditional foods and climate-related changes), conversations with climate change experts and climate activists, and group-based, climate action planning activities to support exploration, build capacity, and generate data.

In keeping with Y-CAR principles, the Gen Z project research integrated DT and capacity building in ways designed to deconstruct the typical power relationships in research, and to decentre the formality of academic research by engaging with playful approaches to exploration and ideation. Several of the youth credited the structure of the research workshops as not only increasing their understanding of the issues, but also increasing their sense of empowerment to act to address issues of concern to them. The early inclusion of adult and peer knowledge-holders in workshops, for example, proved to be an effective way of generating climate conversations and sparking interest in planning for and implement youth-led climate actions (e.g. developing a plan for their school to join the Friday Climate Strikes or designing an urban-gardening practicum opportunity with one of the adult knowledge holders).

One youth described how the invitational nature of the workshops ‘... totally shifted my perspective about climate change, like 100%,’ ... ‘it was just like, “oh, what does the

environment mean to you here?" ... It was amazing. Like if everyone went to that workshop I, hundred percent, I think I [climate change] would just be solved. It was amazing' (Brontë, Gen Z participant).

II. Methodological reflections: challenges and opportunities

Youth engagement

As an experienced participatory research team, we recognized the importance of having or developing strong insider contacts in a community (Giazitzoglu and Payne 2018). Even so, working in communities distant from those of the researchers, as was the case with ARC and YVR, and in communities engaged in disaster recovery, was at times a daunting both in terms of recruitment and sustained engagement.

In the ARC project we had some success by making the initial youth recruitment enticing holding the workshop in a beautiful location (i.e. Banff), with all costs covered, and with activities explicitly designed to make the research process informal, explorative, creative, and fun. There was a significant, and to some extent anticipated, decline in engagement following that workshop which we tried to address by hiring a youth advisory, and paying youth research assistantships as part of a sustained engagement strategy. Although this helped, the reality of deeper and more sustained engagement is that it requires a commitment of time from researchers and participants. For youth in ARC this commitment was not always possible or of interest. Youth who were university undergraduates tended to participate more based in part on access to resources (e.g. transportation, time) and in part their perception of these as useful learning opportunities (e.g. understanding research, building networks) in the context of their studies.

Youth in all our projects have indicated that they are over-committed with school, work, family, and other activities (e.g. sports, recreation, hanging out). Similarly, adults who might have helped sustain or support youth engagement, have often described feeling over stretched themselves, particularly in the post-disaster environments in which we were engaging. Adults and youth impacted by disasters are understandably occupied by trying to re-establish 'normalcy' (e.g. employment, routines, other commitments). Conducting research in these environments is challenging, and engaging youth in these environments requires significant investments of time, energy, funds, and a willingness to reimagine research in ways that make it more flexible, more fun, and more directly relevant to the ways youth work and connect, and to issues of concern to them.

The intentional focus in YVR of working with Indigenous youth in the post-disaster environments required even more time and attention. It started with building relationships and trust which, as primarily non-local and non-Indigenous researchers, took time. We engaged only where and when we were invited; and where the community was convinced that the co-creation and explorations would be beneficial for their communities. In the Y-CAR activities, it was important to recognize the history of racism, poverty, and the multi-generational trauma of colonization uniquely experienced by Indigenous individuals and communities. Acknowledging this in practice meant dedicating time and resources to travel outside of the main municipality to rural Indigenous communities in

order to develop connections and activities where youth lived rather than where they visited for school or work.

There were challenges with these engagements, including the withdrawal of an initial Indigenous partnering organization. Working in a post-disaster environment requires a flexible approach that recognizes the strain on organizational staff who can be overwhelmed by the recovery needs of youth, community, and themselves. This is particularly true in contexts where pre-existing demands may already outstrip available resources. The flexibility of Y-CAR, the non-hierarchical approach, and the use of creative methods to inform a social media campaign (#YouthVoicesWB) enabled both face-to-face and online engagement with Indigenous youth.

Design thinking and capacity building

The addition of the DT process, and the inclusion of a University-based continuing study certificate recognizing the formal and informal learning in the DT process, provides not only a way of structuring the research, but also helps to address the challenges of sustaining meaningful engagement. It introduces a process that once learned can be applied to other issues of concern, while also offering a concrete, recognizable credential as part of research participation. Intentional capacity building is consistent with our shared values of ensuring the benefits of research are reciprocal. Over the course of these and other RbD projects, this focus on capacity building has encouraged deeper and more sustained engagement with some youth. It is also clear from this work, however, that sustained youth-engagement in any context is not necessarily congruent with youth's interests, lifestyles, or capacities. We have learned the value of shaping shorter, iterative events and engagements as well as working to sustain engagement over a longer period of time. Adopting an adaptive rather than prescriptive schedule and engaging with participants to shape the topical focus of activities has allowed us to respond authentically to the emergent requests and needs of youth while still maintaining a focus on the research questions shaped as part of the funding proposal.

The applied focus of the design thinking on real-world issues can also contribute to youth empowerment and wellbeing. Aiswarya (age 17) worked as a youth researcher in the YVR project by making media, assisting in workshops, and interviewing her peers. She said:

"Working towards the goal of making a concrete change in the community helped me with my recovery. These experiences made me feel more connected, and my bond with the community grew stronger. I felt more valuable after having my voice heard, and being recognized for my views, beliefs, and opinions. It is the sense of satisfaction that I have contributed to making my community better that helped me in the wildfire recovery and rebuilding process."

Voice and listening opportunities

In YVR the use of multiple participatory media approaches and the creation of opportunities to share youth-created outputs strengthened youth development, voice, agency, and influence in the context of disaster recovery and resilience (Cox et al. 2019; Plush and

Cox 2019). Creating and ideally co-creating creative opportunities for youth to have a voice and to ensure there are listening spaces and events (e.g. YVR social media campaign during a mayoral election; ARC community pitch event) can build and enhance connections between youth and community members and bring tough-to-discuss issues to light (Berard et al.). This was illustrated by Indigenous youth from the Chipewyan Prairie Dene First Nation who created photographs of local challenges and strengths to use in the #YouthVoicesWB campaign and in wider sharing events such as a community photography show (ResiliencebyDesign Lab 2018b). Speaking after this show, one of the young photographers shared this message in anonymous feedback: 'At the show I had a lot of conversations with different people. They were saying my photo touched their heart because they see this issue all the time. They didn't realize the youth see it too. A lot of them were tearing up; a lot of them were saying that they felt the same way. This is a good starting point to bring up these issues.' Crafting opportunities for creative expression and opportunities to be heard helped youth develop a public, collective voice during a municipal election which, in turn, helped to shape the conversations about priorities during the disaster recovery process. Importantly, YVR emphasized the potential of Y-CAR to shift power imbalances in research with youth by providing listening spaces (Dobson 2014), and supporting their active participation in political action.

III. Discussion

The Y-CAR approach helps to bridge age and generational divides as it fosters intergenerational relationships through creative respectful youth-adult partnerships. The Y-CAR process is designed to be relevant and accessible across different languages, cultures, genders, abilities, lived experiences, and socioeconomic realities. Used in intergenerational contexts, it contributes to ensuring that the research process is reciprocal and mutually beneficial: youth are supported by adults in developing and building on their skills of visioning, collaborating, connecting, and public speaking while working on something that is important to them; adults receive tangible illustrations of the ways in which youths' creativity, wisdom, and innovative thinking and problem-solving can contribute to civic engagement and meaningful action to address shared problems such as climate change and disaster recovery.

Although Creative Action Research (CAR) is not designed exclusively for working with youth, to date we have used and developed this approach primarily working with youth. We have named it Y-CAR to distinguish it from other versions of action research using the same 'CAR' acronym (e.g. classroom action research) and to reflect the unique strengths of this method when working with youth.

Y-CAR, by its very nature, addresses some of the key limitations in much participatory research with youth. In a review of the literature on child and youth participation in research, Shamrova and Cummings (2017) found that, in many cases, youth were included primarily as sources of data. These authors suggest that a lack of resources (i.e. additional time, money, and staff) is frequently an impediment to more meaningful youth engagement in research. They go on to identify several strategies for increasing engagement that are identified as component elements of Y-CAR: training, child- and youth-friendly data collection tools, involvement in data analysis, 'meaningful venues for knowledge dissemination,' and 'enabling methodological choices' (2017, 408). Y-CAR as applied in the

examples we have used, also addresses other critiques of research with youth including tokenistic participation, lack of appropriate feedback for youth, and failures of institutional structures to effectively engage young people (Collins et al. 2019).

The principles guiding Y-CAR respond to these calls for more equitable and reciprocally beneficial engagement in research, by creating environments in which the voices and ideas of participants are valued and formally recognized (e.g. RIS-certificate). Further, the DT process allows the research to be responsive to participant generated foci and questions even within a research project that is pre-defined by a specific research question – one of the challenges of many funded research projects. In the Gen Z research project, for example, when researchers and youth explored the a priori research question, ‘What supports youth engagement in climate action?’, they did so by engaging in research activities that were shaped by questions and issues they themselves identified as priorities (e.g. food security, reducing consumerism, encouraging low carbon-behaviours).

Because they are responsive to individual interests and ways of working, the creative process-based and storytelling methods in Y-CAR also present an opportunity to engage in decolonizing research (Flicker et al. 2008). In a scoping review of the use of arts-based methods with Indigenous communities, Darling-Hammond et al. (2019) suggest five key themes that emerge from arts-based and creative methods that offer benefit to decolonizing research agendas, specifically: (1) participant engagement, (2) relationship building, (3) Indigenous knowledge creation, (4) capacity building, and (5) community action. These themes are recognized in most PAR, which has been posited as a decolonizing research method for healing and social justice (Chilisa 2011). We believe that Y-CAR’s reflective, responsive, relational, and creative approach increases the likelihood that research can serve as a conduit for cultural reclamation and social transformation (De Fruyt, Wille, and John 2015; Mainert et al. 2015; Care, Griffin, and Wilson 2018).

In the face of a rapidly changing and unpredictable future, Y-CAR is a powerful methodological approach for engaging researchers and participants alongside one another in the exploration of challenging and complex issues. Numerous scholars have identified many of the skills targeted in the Y-CAR process as transferable skills that are critical to 21st century employability (Chan, Ou, and Reynolds 2014; Chell and Athayde 2009; Stewart, Reid, and Mangham 1997; Ukko and Saunila 2013; White 2012). This includes skills of inquiry (e.g. interviewing, data generation and analysis); skills associated with community and civic engagement and leadership (e.g. facilitation skills, digital storytelling); skills that can spark personal resilience and informed risk taking (self-efficacy, connection, confidence, optimism); leadership and innovation (e.g. creativity, reflection, critical thinking, and complex and collaborative problem-solving).

As Westley (2008) argued over a decade ago, the skills of DT and social innovation are necessary for ‘build[ing] social and ecological resilience in the face of mounting complex challenges to our economic, social, political, and cultural institutions’ (para. 15). With access to resources, connections, and opportunities to deconstruct, and reimagine the systems in our world, youth and adults can engage with/in research processes that contribute to personal transformation (Cammarota and Fine 2010) and to creating a sustainable future and bringing their innovative ideas to fruition (Chawla and Driskell 2006).

IV. Limitations

In describing the transformative potential of Y-CAR, it is important that we choose not to romanticize this participatory methodology, and to embrace the ‘warts and all’ with respect to possibilities for failure, critically valuing of the complexities and beauty of the process (Mannion 2010, 340). Thus, when deciding to engage with Y-CAR as a methodology, it is crucial that researchers recognize both the value of a process orientation, but also the commitment of time and resources, and the critical reflexivity necessary to sustain process. Y-CAR respects and embraces the messiness of participatory research and need for adaptability. Further, it requires researchers and participants to be reflective and aware of their subjective positions and social context throughout the research journey (Finlay 2002). Y-CAR is meant to provide a flexible, adaptable structure for research; however, consideration must be given to whether the suggested processes are feasible or sustainable in different contexts.

Although working with these youth was and is meaningful work, we were also conscious of the fact that, until this point in the intentional evolution of our applied Y-CAR methodology, the majority of the youth participants were already engaged citizens; many were university or college students already engaged in building their skills, and with access to a variety of avenues where their voices might be heard. Some features of the methodology, such as the principles guiding Y-CAR, have been informed by knowledge keepers and researchers who hold an Indigenous worldview and who have contributed to the relational (process), land (place), and intergenerational responsibility (partnerships and purpose) focus of Y-CAR. However, the design thinking foundation of Y-CAR emerges as a primarily dominant cultural construct reflective of values and beliefs that may or may not be consistent with other worldviews. Although we as a team continue to grapple with this question, applying a decolonizing lens in a more nuanced way to the Y-CAR process would strengthen the methodology.

Conducting research using Y-CAR requires an openness and willingness to interrogate assumptions and biases in an ongoing process of reflection about the focus, process, and outcomes of the research. As previously stated, Y-CAR requires an ongoing and iterative consideration of various ethical issues that have no easy answers. This includes: the ways in which Y-CAR blends or at least blurs the lines between research and programming; navigating what informed consent means when working with youth of various ages and with ethical review boards that define who may or may not give consent; the publication and sharing of visual stories and artefacts even with consent knowing their lifetime existence on the internet; and issues related to the sustainability of not only the process but of supporting participants in ongoing work of implementing strategies and actions generated through the design thinking and action cycle.

V. Conclusion

For the past decade, the authors have individually and collaboratively focused on inter-generational research with youth (aged 15–24 years old) and adult allies. Through the projects described in this article and those not included, the authors have had the opportunity to prototype, test, and refine the Y-CAR research methodology, employing

their own DT process to design an approach to research with youth and adults interested in understanding and responding to wicked problems.

We will continue to learn from each application of the Creative Action Research approach, and in particular Y-CAR, refining the process in ways that strengthen and solidify the core components that comprise and distinguish this approach from other PAR methodologies. With its orientation to meaningful, respectful participation and reflexive ethics, Y-CAR can create a psychologically, emotionally, socially, and physically safe and brave (Ryujin, DeShana, and Mulitalo 2016) environment for exploration and experimentation – a space in which adults and youth can meet, share, and move into action. Such safe or brave spaces are necessary for fostering intergenerational, mutually beneficial opportunities to learn and build respectful and empathic relationships and to work collaboratively to influence policies, practices, research, and decisions to address the pressing challenges faced today in our shared futures.

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